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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Atty. Ref.: 511-57

BROSSEUK

Serial No. 10/814,786

Group: Not Yet Assigned

Filed: April 1, 2004

Examiner: Not Yet Assigned.

For: STEERING MECHANISM FOR WATERCRAFT

* * * * *

June 4, 2004

]Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

SUBMISSION OF PRIORITY DOCUMENT

It is respectfully requested that this application be given the benefit of the foreign filing date under the provisions of 35 U.S.C. §119 of the following, a certified copy of which is submitted herewith:

<u>Application No.</u>	<u>Country of Origin</u>	<u>Filed</u>
2003/2710	South Africa	4 April 2003

It is respectfully requested that the Examiner acknowledge the above-noted claim for priority and receipt of the priority document.

BROSSEUK
Serial No. 10/814,786

While it is believed that no fee is due at this time, the Commissioner is hereby authorized to charge any deficiency in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our **Account No. 14-1140**.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: Robert A. Molan
Robert A. Molan
Reg. No. 29,834

RAM:drt
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100

Sertifikaat



Certificate

REPULIEK VAN SUID AFRIKA

REPUBLIC OF SOUTH AFRICA

PATENT KANTOOR
DEPARTEMENT VAN HANDEL
EN NYWERHEID

PATENT OFFICE
DEPARTMENT OF TRADE AND
INDUSTRY

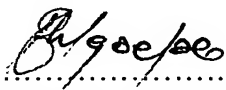
Hiermee word gesertifiseer dat
This is to certify that

- 1) South African Provisional Patent Application No. **2003/2710** accompanied by a Provisional Specification was filed at the South African Patent Office on **4 April 2003**, in the name of **BROSSEUK, Raymond Brian** in respect of an invention entitled: "**Steering mechanism for watercrafts.**"
- 2) On **20 February 2004** an assignment of South African Patent Application No. **2003/2710** from BROSSEUK, Raymond Brian to **IE-TEC Licensing Limited** was recorded at the South African Patent Office.
- 3) The photocopy attached hereto is a true copy of the provisional specification and drawings filed with South African Patent Application No. **2003/2710**.

Geteken te
Signed at **PRETORIA**

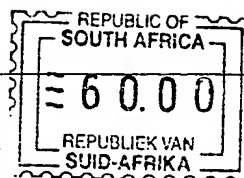
in die Republiek van Suid-Afrika, hierdie
in the Republic of South Africa, this

dag van
21th April 2004
day of


.....
Registrar of Patents

REPUBLIC OF SOUTH AFRICA				PATENTS ACT, 1978			
REGISTER OF PATENTS							
OFFICIAL APPLICATION NO.			LODGING DATE : PROVISIONAL			ACCEPTANCE DATE	
21	01	2003/2710		22	4 April 2003		43
INTERNATIONAL CLASSIFICATION			LODGING DATE : COMPLETE			GRANTED DATE	
51				23			
FULL NAME(S) OF APPLICANT(S) / PATENTEE(S)							
71	BROSSEUK, Raymond Brian						
APPLICANTS SUBSTITUTED :							
71	Le-fee Licensing					DATE REGISTERED	
					20.02.04		
ASSIGNEE(S)							
71							
DATE REGISTERED							
FULL NAME(S) OF INVENTOR(S)							
72	BROSSEUK, Raymond Brian						
PRIORITY CLAIMED							
COUNTRY		NUMBER		DATE			
N.B. Use international abbreviation for country. (See Schedule 4)		33	31	32			
TITLE OF INVENTION							
54	STEERING MECHANISM FOR WATERCRAFT						
ADDRESS OF APPLICANT(S) / PATENTEE(S)							
1810 Marley Road Revelstoke British Columbia Canada V03 2S0 Canada							
1st floor, Fairfax House 21 mgf 90th Street Port Louis Mauritius							
ADDRESS FOR SERVICE						REF	
74	D M Kisch Inc, 54 Wierda Road West, Wierda Valley, SANDTON					P26471ZA00	
PATENT OF ADDITION NO.			DATE OF ANY CHANGE				
61							
FRESH APPLICATION BASED ON			DATE OF ANY CHANGE				

REPUBLIC OF SOUTH AFRICA
PATENTS ACT, 1978



Form P.1

APPLICATION FOR A PATENT AND ACKNOWLEDGEMENT OF RECEIPT
(Section 30 (1) - Regulation 22)
The grant of a patent is hereby requested by the undermentioned applicant
on the basis of the present application filed in duplicate.

OFFICIAL APPLICATION NO		
21	01	2003/2710

DMK REFERENCE
P26471ZA00

FULL NAME(S) OF APPLICANT(S)

71	BROSSEUK, Raymond Brian <i>LE-REC Licensing Limited</i>	AANGOEKERS VERVANG APPLICANTS SUBSTITUTED <i>20/02/04</i>
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ADDRESS(ES) OF APPLICANT(S)

1810 Marley Road Revelstoke British Columbia Canada V03 2S0 Canada	<i>1st floor, Fairfax House 21 ngr Gouda Street Port Louis Mauritius</i>
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TITLE OF INVENTION

54	STEERING MECHANISM FOR WATERCRAFT		
	THE APPLICANT CLAIMS PRIORITY AS SET OUT ON THE ACCOMPANING FORM P2 The earliest priority claimed is		
	THIS APPLICATION IS FOR A PATENT OF ADDITION TO PATENT APPLICATION NO.	21	01
	THIS APPLICATION IS FRESH APPLICATION IN TERMS OF SECTION 37 AND BASED ON APPLICATION NO.	21	01

THIS APPLICATION IS ACCOMPANIED BY :	
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x	1a	A single copy of a provisional specification of 10 pages.
	1b	Two copies of a complete specification of pages.
	2a	Informal drawings of sheets.
x	2b	Formal drawings of 6 sheets.
	3	Publication particulars and abstract (form P8 in duplicate).
	4	A copy of figure of the drawings for the abstract.
	5	Assignment of invention (from the inventors) or other evidence of title.
	6	Certified priority document(s).
	7	Translation of priority document(s).
	8	Assignment of priority rights.
	9	A copy of form P2 and a specification of S.A. Patent Application.
	10	A declaration and power of attorney on form P3.
	11	Request for ante-dating on form P4.
	12	Request for classification on form P9.
	13a	Request for delay of acceptance on form P4.
	13b	

21	01
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DATED 4 April 2003

ADDRESS FOR SERVICE	
74	D M Kisch Inc Inanda Greens Business Park 54 Wierda Road West Wierda Valley SANDTON

<i>[Signature]</i>
PATENT ATTORNEY FOR APPLICANT(S) REGISTRAR OF PATENTS DESIGNS, TRADE MARKS AND COPYRIGHT RECEIVED
OFFICIAL DATE STAMP 2003-04-04
REGISTRAR OF PATENTS REGISTRATEUR VAN PATENTE, MODELLE, HANDELSMERKE EN OUTEURSREG

The duplicate will be returned to the applicant's address for service as proof of lodging but is not valid unless endorsed with official stamp.

REPUBLIC OF SOUTH AFRICA

PATENTS ACT, 1978

PROVISIONAL SPECIFICATION

(Section 30 (1) - Regulation 27)

OFFICIAL APPLICATION NO.		LODGING DATE		DMK REFERENCE
21	01 2003/2710	22	4 April 2003	P26471ZA00
FULL NAME(S) OF APPLICANT(S)				
71	BROSSEUK, Raymond Brian			
FULL NAME(S) OF INVENTOR(S)				
72	BROSSEUK, Raymond Brian			
TITLE OF INVENTION				
54	STEERING MECHANISM FOR WATERCRAFT			

Title of Invention: STEERING MECHANISM FOR WATERCRAFT

Introduction

This invention relates to a steering mechanism for jet-propelled watercraft.

- 5 More particularly, it relates to a steering mechanism for jet-propelled watercraft that is engaged at varying speeds.

Background of the Invention

- Steering devices for watercraft are well-known. The art includes various
10 references to improved rudders for such craft: US patent 6,428,372, for example, discloses a pivotally-mounted rudder for a jet-propulsion unit, while US patent 5,167,547 discloses a pivotally-mounted rudder that is movable into a steering position.

- 15 One example of the major disadvantages associated with the current art is that the watercraft cannot be steered, or cannot be steered satisfactorily if they are not accelerating, as there is insufficient water passing through the engine to provide the jet thrust that is required to steer and turn the craft. When faced with obstacles or other dangerous circumstances in the water,
20 therefore, an operator of watercraft would necessarily be obliged to accelerate in order to provide sufficient power to manoeuvre the craft away from the danger. Such acceleration may often only serve to add to the

danger of the situation, particularly for inexperienced operators, and in circumstances in which there is insufficient time to accelerate in order to avoid the danger.

5 Certain inventions have been directed at the partial alleviation of these disadvantages. In particular, US patent 5,167,547 describes a steering rudder that is selectively operable at the operator's option, while US patent 4,949,662 describes an auxiliary steering means to create a steering effect in a jet propulsion boat at low speeds. Other patents concentrate more
10 generally on the coupling of an actuator on to a rudder (cf: US patent 6,428,372).

While this last-mentioned patent discloses an invention that certainly aids the steering of watercraft, it does little to alleviate the second disadvantage,
15 namely engaging an improved steering mechanism within the critical time available to avoid danger when travelling at low speeds.

Object of the Invention

It is accordingly an object of the present invention to provide an improved
20 steering mechanism for watercraft that engages automatically at off-throttle conditions, and which, at least partially, overcomes the disadvantages outlined above.

Summary of the Invention

According to the invention there is provided a steering mechanism for jet-

5 propelled watercraft comprising:

a rudder, movable between a steering and a non-steering position, and which rudder is configured to couple with the steering column of the watercraft when in the steering position;

securing means for securing the steering mechanism to a watercraft;

10 biasing means for biasing the rudder towards the non-steering position; and
actuating means for actuating the movement of the rudder towards the steering position automatically, on the speed of the watercraft dropping below a predetermined level.

15 The securing mechanism is preferably affixed to the outlet nozzle of the watercraft.

The securing means may incorporate nut-and-bolt fixtures for affixing the steering mechanism to the body of the watercraft.

20

The rudder may incorporate a plate member located in a substantially ventral position.

The biasing means may incorporate a spring-loaded engaging member that is configured to engage the plate member of the rudder at high speeds or high nozzle velocities, and to disengage from the plate member at low speeds or low nozzle velocities.

In an alternative embodiment of the invention, the biasing means may incorporate a piston-and-lug arrangement that biases the rudder towards the non-steering position, preferably wherein the lugs are coupled to the actuating means.

The actuating means may be coupled to the speedometer, alternatively revolution-counter of the engine, of the watercraft and may incorporate speed-sensitive apparatus which, on the speed, alternatively engine-revolutions, of the watercraft dropping below a predetermined level, overcomes the biasing means to reverse the direction of its bias, allowing the rudder to move towards the steering position.

In an alternative embodiment of the invention, the biasing means may be caused to reverse the direction of its bias via the activation of a source of pressure.

In such an embodiment, the source of pressure may be a pneumatic cylinder.

The source of pressure may be activated by a solenoid.

- 5 In a further alternative embodiment of the invention, the actuating means may be coupled to the outflow nozzle of the watercraft, and may incorporate pressure-sensitive apparatus, such as a feedback control device and/or venturi. On the pressure dropping below a predetermined level, the control device compels the biasing means to overcome the bias, allowing the rudder
- 10 to move towards the steering position.

According to a second aspect of the invention, there is provided a method for the automatic deployment of a steering mechanism in a watercraft, comprising the step of actuating the rudder into the steering position as

15 defined in any of the above consistories.

Brief Description of the Drawings

The invention will now be described in greater detail, by way of example, with reference to the following drawings, in which:

20

Figure 1 is a profile view showing a steering mechanism according to a first embodiment of the invention, wherein position I depicts the

rudder in a non-steering position (ie at high speeds), and position II depicts the rudder in a steering position (ie at low speeds);

5 Figure 2 is a perspective view of the steering mechanism according to this embodiment of the invention;

10 Figure 3a is a profile view showing the engagement of the rudder and the plate member when in the non-steering position (position I) at high speeds;

15 Figure 3b is a profile view showing the engagement of the rudder and the plate member when in the steering position (position II) at low speeds;

20 Figure 4 is a profile view showing a steering mechanism according to a second embodiment of the invention, wherein position I depicts the rudder in a non-steering position (ie at high speeds), and position II depicts the rudder in a steering position (ie at low speeds);

Figure 5 is a perspective view of the steering mechanism according to

the second embodiment of the invention; and

Figure 6 is a diagrammatic representation of the actuating means in the second embodiment of the invention.

5

Detailed Description of the Invention

Referring to the drawings, a steering mechanism in accordance with the invention is provided, referred to generally by numeral 10, incorporates a rudder 20 that is coupled to the steering column (not shown) of the watercraft 30. The steering mechanism 10 is secured to the outlet nozzle 60 of the watercraft 30 by means of a steel nut-and-bolt arrangement 70.

Figures 1, 2 & 3 depict a biasing means according to a preferred embodiment of the invention, wherein the biasing means comprises a plate member 140 and a rudder 20 having a substantially hook-like formation 150 at the terminal end thereof, that is spring-loaded 170. Unlike the plate member 140, which is coupled rigidly to the watercraft 30, the catch member 150 is pivotable about a pivot 160. At low speeds, the terminal end of the rudder 20 drops under gravity and spring tension, and its hook-like formation 150 disengages from the subjacent plate member 140, thereby causing the rudder 20 to move into the steering position as the direction of bias changes.

Conversely, at high speeds, the higher water pressure compels the rudder 20 to pivot in the direction of the water's surface, in which case the hook-like formation 150 engages with the plate member 140.

- 5 When, after the speed of the watercraft 30 falls below the predetermined level, the watercraft is caused to accelerate, the increase in water pressure will again cause the rudder 20 to pivot in the direction of the water's surface, and the hook-like formation 150 to engage with the plate member 140 as the rudder becomes biased in the non-steering position. This process of
- 10 engaging and disengaging the rudder into the steering and non-steering positions respectively may be repeated *ad infinitum*. The rudder 20 is disposed of a further plate member 180, in a substantially ventral position (ie facing the outlet nozzle 60); the further plate member aiding the hydrodynamics of the rudder 20 through water, and thus facilitating the
- 15 engaging/disengaging process described above.

- In an alternative embodiment of the invention, as depicted in Figures 3 & 4, the steering mechanism 10 further incorporates a biasing means comprising pneumatic pistons 40 and lugs 50. The pneumatic pistons 40 are, in turn,
- 20 coupled to a pneumatic cylinder 80, which forms part of the actuating means (indicated generally by reference numeral 90 in Figure 5).

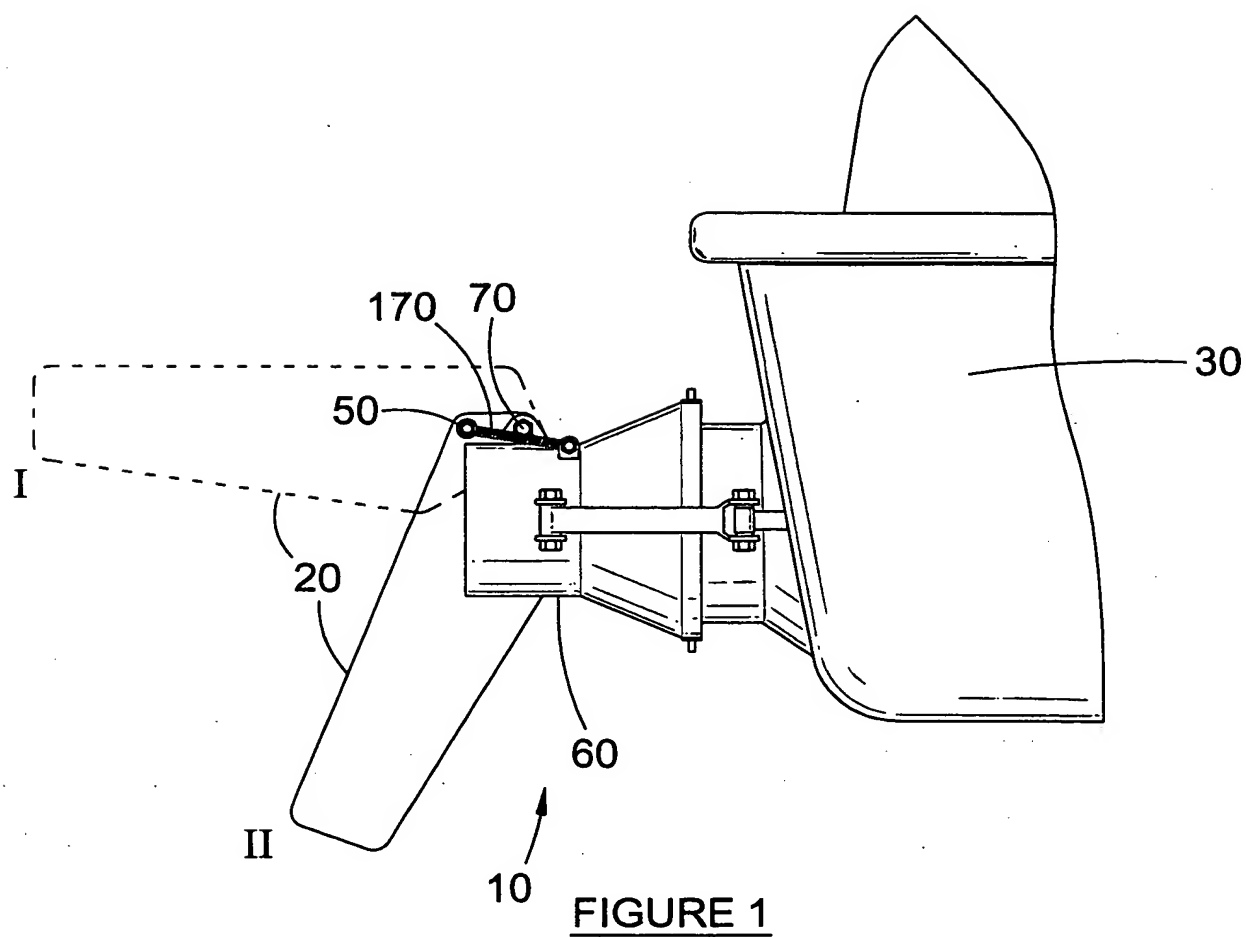
A further component of the actuating means 90 in this embodiment of the invention is the revolution counter of the engine 100, which is coupled to an electrical solenoid 120 via a switch 110 that is built into the revolution counter 100, and which is activated on the watercraft speed falling below a
5 predetermined level. The solenoid 120, when so activated, permits the opening of a valve 130 on a source of pressure- in this instance, being the pneumatic cylinder 80- which allows for the release of pressure from the pneumatic cylinder 80, causing the displacement of a pneumatic piston 40. This displacement of the pistons 40, in turn, results in a reversal of the
10 direction of the bias of the rudder 20, as it is moved into the steering position.

It will be understood by a person skilled in the art that various embodiments of the invention which are not described herein, are possible, without departing from the spirit and scope of the invention as herein described.

15

Dated this 4 day of April 2003

Patent Attorney / Agent for the Applicant



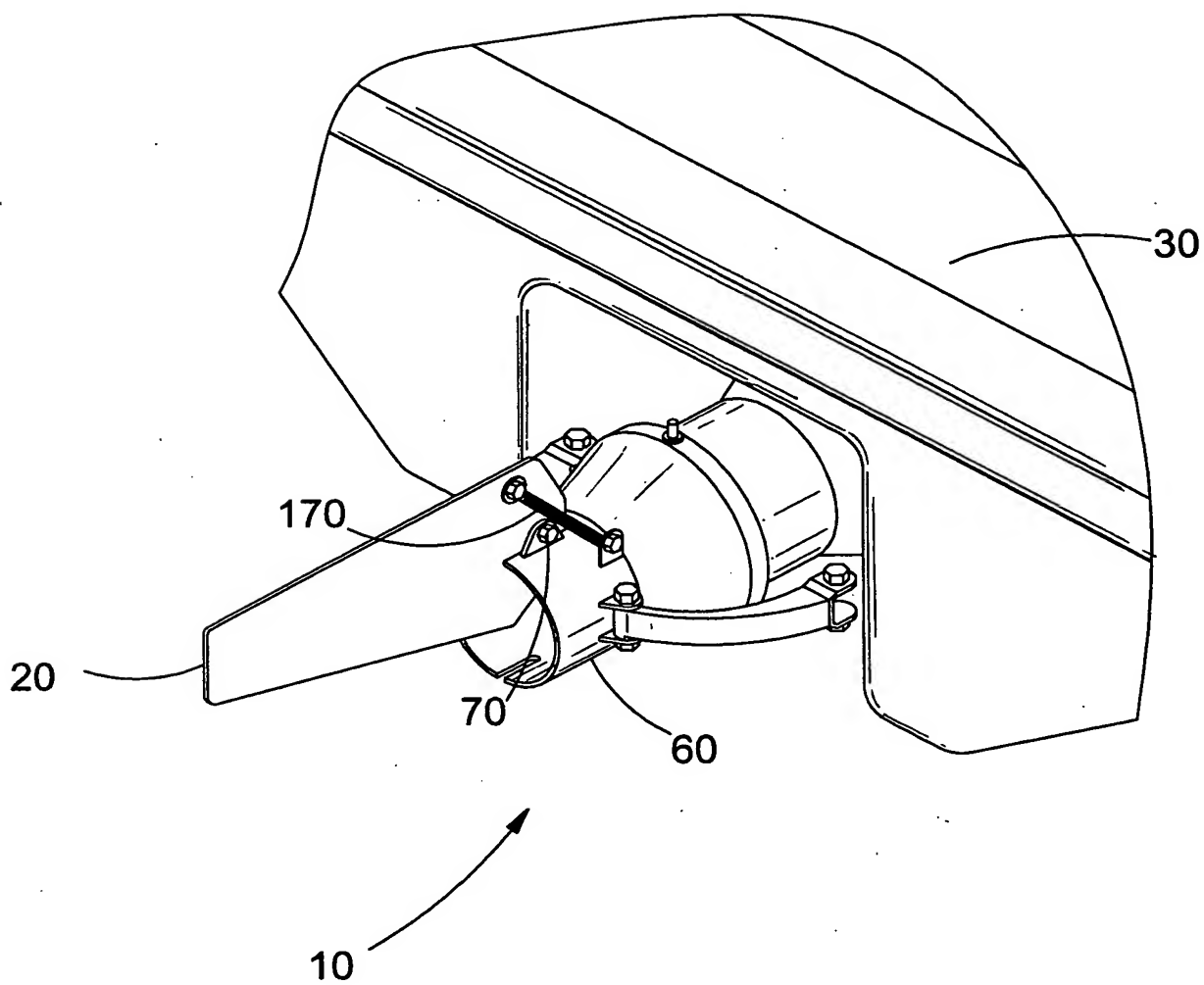
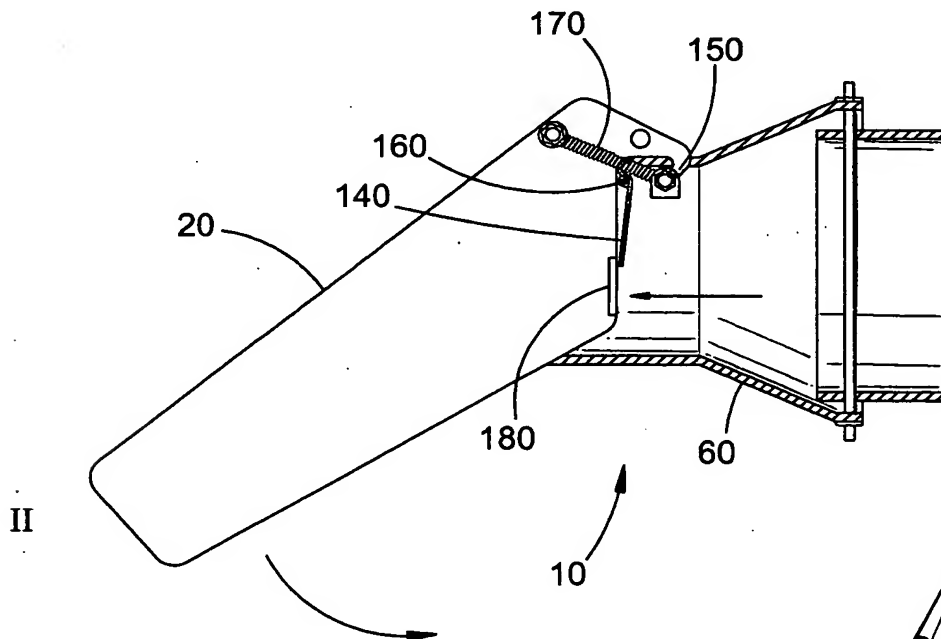
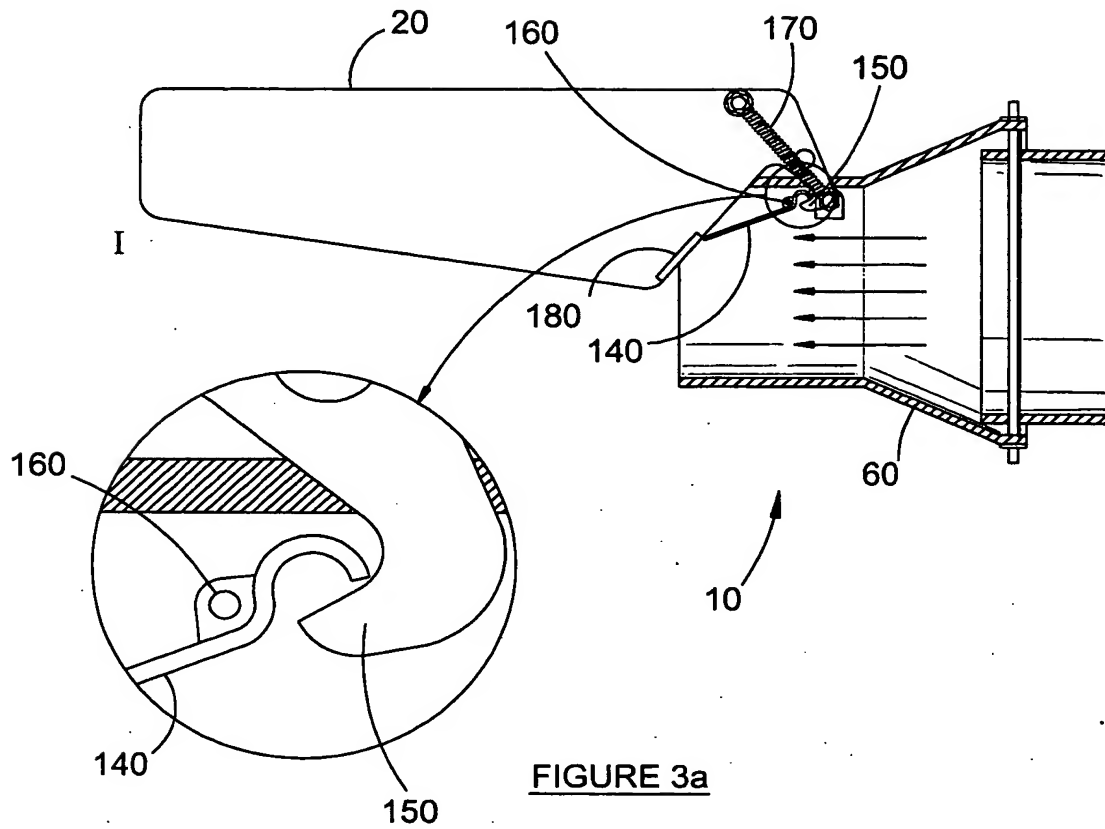
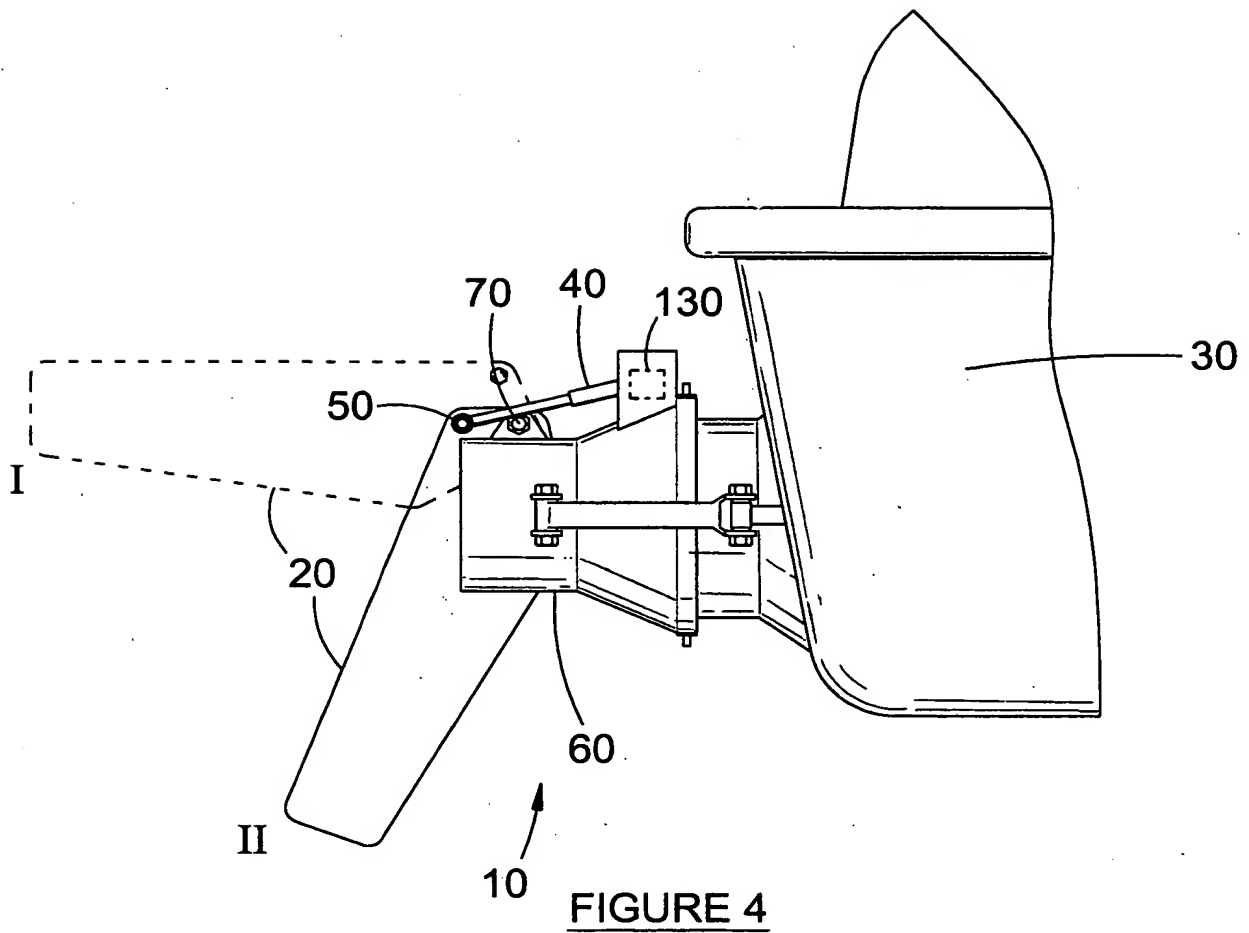


FIGURE 2





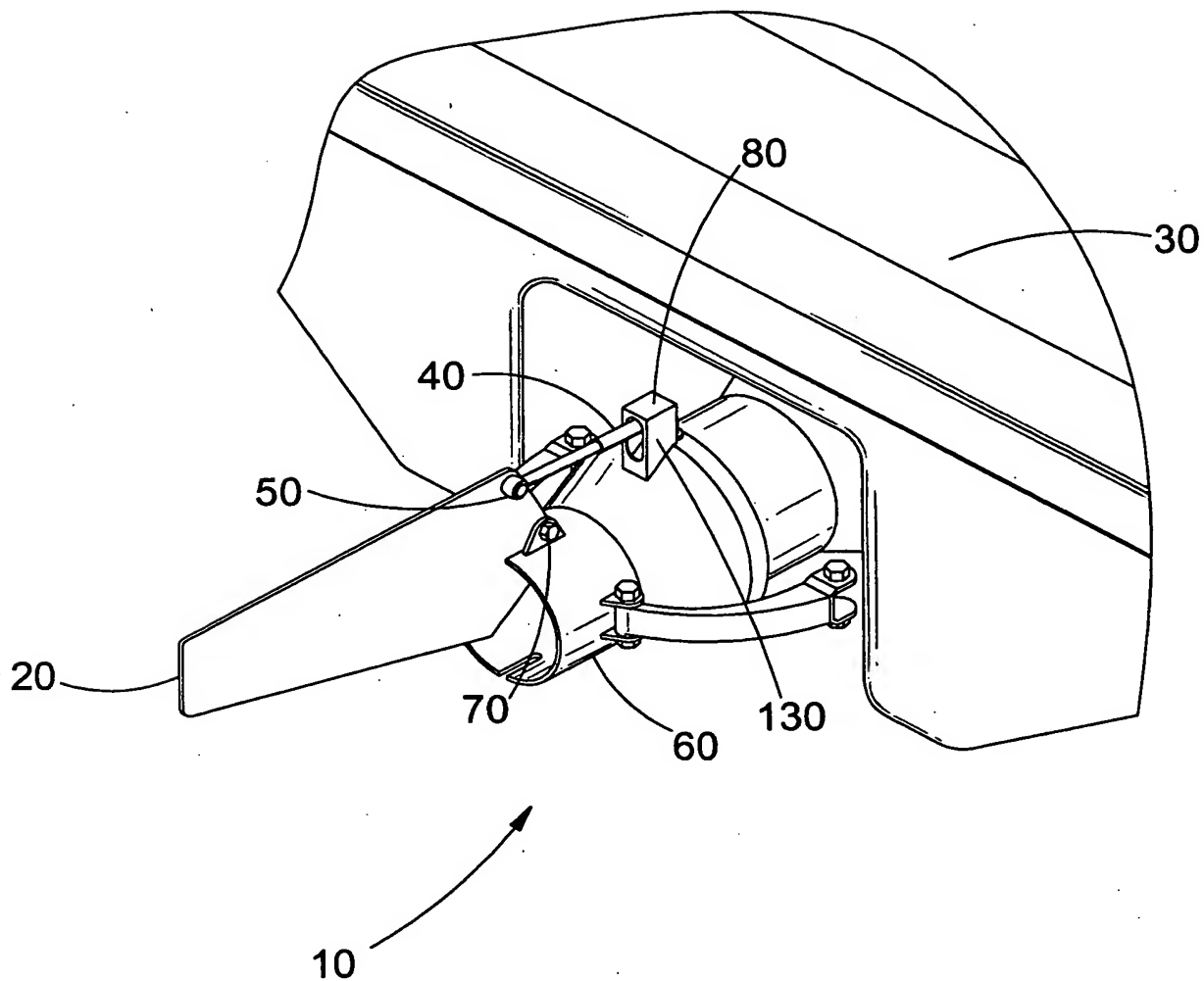


FIGURE 5

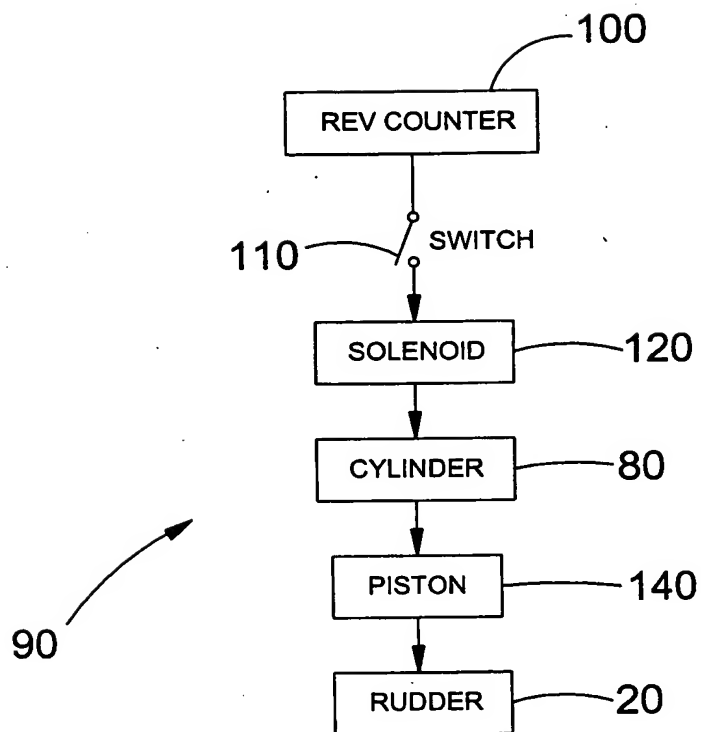


FIGURE 6